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THE
QUARTERLY JOURNAL
OF
CONCHOLOGY.

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BOOKS RECEIVED.

The American Naturalist.—Edited by Prof. A. S. Packard, junr.—Jan—April, 1877, 8vo., pp. 256. [The Editor.

Astor Library, New York.—28th Annual Report, 8vo., pp. 16. [The Trustees.

Descriptions of six new species of shells, from the collections of the Marchioness Paulucci and Dr. Prevost.—By G. B. Sowerby junr., (From P.Z.S., Nov., 1876), 8vo., pp. 4 and plate.

Jahrbucher der Deutschen Malakozoologischen Gesellschaft.—Edited by Dr. W. Kobelt.—Jan., 1877, 8vo., pp. 96 and plate. [The Editor.

On some new and peculiar Mollusca of the Eulimidæ and other families of Gastropoda as well as of the Pteropoda, procured in the 'Valorous' expedition.—By J. Gwyn Jeffreys, LL.D., F.R.S., &c.—April, 1876, 8vo., pp. 22. [The Author.

On some new and remarkable North-Atlantic Brachiopoda.—By J. Gwyn Jeffreys, LL.D., F.R.S., &c.—Sept., 1876, 8vo., pp. 6. [The Author.

Scientific Results of the Exploration of Alaska, by the parties under the charge of W. H. Dall, during the years 1865—1874, 8vo., pp. 45 and 10 plates.

[Prof. W. H. Dall.

On the Vitality of certain Land Mollusks.—By R. E. C. Stearns.—8vo., pp. 2 and plate. [The Author.

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the jaw with separate delicate ribs, usually oblique.

The genera whose jaw is in one piece with an accessory quadrate piece, are *Succinea*, *Omalonyx*, *Hyalimax*, and *Athoracophorus*.

Orthalicus, *Liguus* and *Punctum*, have the jaw in separate pieces.

Then follows a dissertation on the value of the jaw and lingual membrane for purposes of classification and an arrangement of the North American Pulmonata in accordance with the scheme advocated of which the foregoing is an epitome.

Journal de Conchyliologie, July, 1876.

WATSON, Rev. R. B.—Note sur les coquilles terrestres communes à Madère et à d'autre contrées, considérées au point de vue de la distribution des espèces (Note on the land shells common to Madeira and other countries, considered from the point of view of the distribution of the species), pp. 217—232.

33 land and freshwater shells are common to Madeira and other localities; 146 being peculiar. Six of the 33 species are confined to one or two gardens, etc., and are certainly foreign to the fauna; 6 others are also probably recent importations; 7 others were probably introduced about the period of the first settlement of the islands; 4 species were probably imported independently of man; 2 are rather doubtful; 8 only can be considered indigenous to Madeira, and common to it and other localities. The marvelous speciality of the Madeiran fauna is thus seen. Putting aside the imported and the doubtful species, only 8 out of 154 truly Madeiran shells are found in other localities.

FISCHER, Dr. P.—Description d'un nouveau genre de Coquille des mers de la Chine (Description of a new genus of shells from the China seas), pp. 232—235.

The new genus, *Hoplopteron* is remarkable for wing-like pro-

jections from each side of every whorl, it is considered to be allied to *Scalaria*. One species *H. Terquemi*, of almost microscopic dimensions, is described and figured (Pl. ix).

FISCHER, Dr. P.—Descriptions d'espèces nouvelles de l'Afrique occidentale (Descriptions of new species from West Africa) pp. 236—240.

Murex hoplites, (Pl. viii, fig. 5), Goree, near *M. saxatilis*, L.; *Arca despecta*, (fig. 1), hitherto confounded with *A. Noë*, L.; *A. Bouvieri* (fig. 2), Cape de Verdes and Guinea, something like *A. pacifica*, Sow.

MORLET, L.—Notes sur quelques Mollusques terrestres et fluviatiles de l'Alsace (Note on some land and freshwater mollusca of Alsace) pp. 240—241.

The author indicates some omissions in Hagenmueller's Catalogue. [Some of the species—*Zonites Dutaillyanus*, Mabille, and *Hydrobia Charpyi*, Mab.—are probably only varieties or synonyms.]

LATASTE, F.—Sur les troncatures successives d'un *Helix aspersa* en forme de corne d'abondance (The successive truncations of a cornucopia-shaped *Helix aspersa*) pp. 242—246.

A cornucopia-shaped *H. aspersa* had been picked up in a vineyard, but had lost the top of its spire though careless carriage, the animal having formed a partition at the top to exclude the air. Gradually more and more of the spire was broken off, and new partitions were formed. One day in taking up the mollusk it fell out of its shell, was replaced in it, and is now as well as ever. A portion of the liver had been removed when the shell was first broken, and this was never renewed.

Palæontology and Bibliography, pp. 247—308.

Correspondence, pp. 308—310. A letter from Mr. Wollaston is published, giving an account of the fauna of St. Helena. Mollusca are very few, especially in the higher regions, but Mr. Wollaston believes that he has added 5 new species to the list—the common European *Helix pulchella*, a small *Patula* probably *pusilla*, a small *Hyalinia*, undetermined, a reddish *Limnæa*, and finally a magnificent new *Bulimus*, of which most of the specimens were dead, but one or two were living. M. Crosse conjectures that this may be the *B. auris-vulpina*, known as subfossil from St. Helena since the time of Chemnitz, but never before found alive.



Journal de Conchyliologie, October, 1876.

CROSSE & FISCHER.—Mollusques fluviatiles recueillies au Cambodge par le Mission scientifique française de 1873 (Fluviatile mollusca collected in Cambodia by the French scientific expedition of 1873), pp. 313—342.

This expedition was rather archæological than zoological, nevertheless naturalists were attached to it—MM. Jullien and Ratte—and made collections in a part of the basin of the Mekong hitherto unexplored. A list of 43 species is given. *Paludina Frauenfeldi*, Desh., is altered to *P. Rattei*, on account of *P. Frauenfeldi*, Morelet, having priority. *Paludina Cambodjensis*, Mabilie & Le Mesle, and *P. Chalanguensis*, Desh., are probably the same; the former name would have priority. The new genus *Pachydrobia* is proposed for *Pachychilus parvus*, Lea, from Siam, and a new species, *P. paradoxa*, Cr. & F., (Pl. x, fig. 3) from sandbanks in the Mekong. *Unio (Arconaia) Delaportei*, (Pl. x, fig. 1, and Pl. xi, fig. 5) and *Pseudodon Harmandi* (Pl. x, fig. 2) are described as new; the former is a most remarkable species, having one side of the valves prolonged into a beak. *Pseudodon (Monocondylea) tumidus*, Desh., is renamed *P. Moreleti*, on account of an older

P. tumidus, Morelet.

Some general considerations follow : the most striking feature of the fauna is the abundance of the genus *Paludina*, of most varied forms. The genus *Pachydrobia* and *Lacunopsis* are peculiar to this region. *Canidia* is found, a freshwater *Buccinum* [see Dr. Brot's paper], a fact not without example in other groups. The genus *Pseudodon* attains its maximum, and the *Unionidæ* generally are remarkable. *Corbicula* is very well represented.

BROT, A.—Note sur les genres *Canidia* et *Clea*, avec la description de deux espèces nouvelles (Note on the genera *Canidia* and *Clea*, with descriptions of two new species), pp. 343—353.

These two genera have hitherto been placed among the *Melaniadæ*, but the examination of the radula proves them to belong to the *Buccinidæ*. The median plate has seven denticulations in *Canidia* and ten in *Clea*, the lateral has 3 stout teeth in both genera, the external tooth being extremely large and much curved. Eleven species of *Canidia* and two of *Clea* are enumerated; *Canidia tenuicostata* (Pl. XII, fig. 5), and *C. Bocourti* (fig. 6), both from Siam, being described as new.

MORCH, O. A. L.—Révision des Mollusques terrestres des îles Nicobar (Revision of the terrestrial Mollusca of the Nicobars) pp. 353—367.

35 species are enumerated, a mere fragment of what may be expected from the Islands. The following are new: *Nanina Roepstorfi* near *N. Frauenfeldi*, *N. iopharynx* near to *N. Timorensis*, *Helix microtrochus*, *Bulimus* (rather *Stenogyra*) *Roepstorfi*, *Cyclophorus polynema*. The author mentions that in almost all the species, two forms, a larger and a smaller, have been met with, and that the larger was found by the old collectors, whilst the smaller occurs now. He attributes this to a diminution in the

humidity of the climate.

MORCH, O. A. L.—Note sur le *Scutus abnormis*, G & H. Nevill, pp. 367—8.

This turns out to be a dorsal valve of *Pholas Siamensis*, Spengler. *Patella acinaces*, Lea, is probably also a valve of *Pholas*.

MORCH, O. A. L.—Description d'espèces nouvelles (Descriptions of new species), pp. 368—376.

Trophon Heuglini, Arctic Ocean, *Fusus Pfaffii*, Greenland & Spitzbergen, *Fusus productus*, Beck in coll., Cape North, North Pacific, *Iopsis Gabbii*, Porto Rico, *Odostomia torcula*, St. Thomas, W. Indies, *Psammobia Circe*, Tortola, *Scintilla eburnea*, St. Thomas, W. Indies, *Turricula Rawsoni*, West Indies, probably Barbadoes.

MORELET, A.—Description de trois *Helices* du Maroc (Description of three *Helices* from Morocco), pp. 374—6.

H. finitima, *conopsis*, and *Mareccana*.

SOUVERBIE, DR.—Description d'espèces nouvelles de l'archipel Calédonien (Descriptions of new species from the New Caledonian Archipelago), pp. 376—381.

Mitra fusus (Pl. xiii. fig. 3, 4), *M. brevicula* (fig. 5), *M. adumbrata* (fig. 6), all from Lifou, *Subeulima Lamberti* (fig. 2), I. Nou.

SOUVERBIE, DR.—Descriptions d'espèces nouvelles (Descriptions of new species), pp. 382—383.

Turbinella Crosseana (Pl. xiii, fig. 1), locality unknown, *Scaelenostoma apiculatum*, Mauritius.

CROSSE and FISCHER.—Description d'espèces nouvelles provenant du Guatemala (New Guatemala species), pp. 383—384.

Streptostyla Sargi (Pl. xi, fig. 1), *Melania Sargi* (fig. 4).

CROSSE, H.—Description de deux espèces nouvelles (Descriptions of two new species), pp. 387—389.

Ennea Dupuyana (Pl. xi, fig. 2) Comoro Ids., *Planorbis Bayayi* (fig. 3), Guadeloupe.

Under the head of correspondence and news, the discovery of *Amphibulima patula* at Marie Galante and of *Trigonia acuticostata* in Bass' Straits are noticed.

C. P. G.

Rossmassler's Iconographie,

Fortgesetzt von Dr. W. Kobelt.

Lieferungen 5 and 6. (See Q. J. C. p. 169).

The fifth and sixth parts (in one) of this work have lately appeared, and continue to maintain the high standard of the former numbers.

The fine species of *Zonites* figured in the last part are described, and we may here remark that the British species called *Zonites* by Jeffreys, etc., really belong to *Hyalina*—shown by anatomy to be a distinct genus.

After another plate of *Zonites*, we have in this part some very fine species of the subgenus *Pentatænia*, including *H. platycheila*, *Rosalia*, *atlasica*, *Beaumieri*, and *Xanthodon*.

Of *H. planata*, the type and the beautiful variety *erythrostoma* are figured; we then have *H. Dehnei*, a species only known for a long time from a single specimen found amongst gum arabic, but lately collected in large numbers in Morocco by Drs. von Fritsch and Rein, and the series of *Helices* is closed for the present by a curious variety of *H. Pisana*.

The next five plates are devoted to species of *Unio* and *Anc-*

don, including some very beautiful and new South European forms, e.g., *U. Fiscallianus*, *Requieni* var. *romana*, *Blauneri*, *Ksibianus*, *Penchinatramus*, *A. idrina* and *Debettana*.

This double part concludes the first volume.

We have one slight criticism to make and are almost glad of it in order to prove that the praise we have bestowed on this work is due to honest appreciation, and not to indiscriminate flattery. We think that the advertisement of certain of Herr Kreidel's other publications would have been better loose, or else printed inside the cover, instead of being paged with, and thus forming part of the text of Dr. Kobelt's work.

C. P. G.

Deutsche Excursions Mollusken-Fauna.

By S. Clessin.

Parts 1—3, Nurnberg. Bauer and Raspe. 1876.

Price 2 marks 50 Pfgs. [2/6] each part.

We must confess to a certain feeling of disappointment at the scope of this work.

By taking the new "Reich" with the addition of Bohemia only, as the limit of the fauna, instead of the old "Bund," the author has lost the most productive and interesting districts, especially Tyrol, Styria, Carniola and Carinthia, whilst Alsace-Lorraine, Schleswig and the Eastern Prussian Provinces which are added, contain hardly any, if any, species not also found within the limits of the Bund. We merely mention this to prevent others from experiencing the same disappointment as ourselves, and not as any blame to Herr Clessin, who has naturally the right of publishing such fauna as he chooses.

The author in his introduction offers a few general remarks on the object of the work, gives very interesting, and to the collector useful, details of the habitats and mode of life of the land and fresh-

water mollusca, and some serviceable hints on the collection and preparation of shells.

The descriptive part follows, every species being described—both animal and shell—followed by information as to its station, and its distribution both within and outside of Germany.

The synonymy is purposely shortened as much as possible, only the citation of the original description, references to some figures, and to any published accounts of the anatomy, with one or two other quotations, being given. Each species is illustrated by a woodcut, giving a view of the shell from above, from below, and sideways.

The subject of variation is treated in an original, and by no means bad manner. Differences in size and colour are described, but those of form only are named.

Almost all the British species are included in the German Fauna, *Helix virgata* and *Pisana* being perhaps the most striking exceptions, whilst the following German genera and sub-genera are absent in England, *Daudebardia*, *Triodopsis*, *Pectasia*, *Eulota*, *Campylæa*, *Zeb-rina*, *Chondrula*, *Orcula*, *Pagodulina*, *Delima*, *Fusulus*, *Graciliaria*, *Trigonostoma*, *Strigillaria*, *Pomatias*, and *Lithoglyphus*.

Most of the other genera and sub-genera are represented much more largely in Germany, *Xerophila* being about the only exception, but at the same time, with the exception of the species of the Bavarian Alps and of the Danube, the general character of the fauna is very similar to the English.

The land shells are very well treated, and we have no fault to find with the author's appreciation of species. In the freshwater shells, on the other hand, we think he refines too much. It is impossible for instance to look at the figures of *Bythinella Dunkeri* and *cylindrica*, or of *Planorbis complanatus* and *Clessini* without the strongest doubts as to the distinctness of the species.

The figures are on the whole fairly drawn, though sometimes rather rough. It is only right however to take into consideration

the low price of the work, which must be commended as a very useful guide for conchological excursions in Germany. C. P.G.

Zusatze und Berichtigungen zu meinem Catalog der im Europäischen Faunengebiet lebenden Binnenconchylien (Additions and corrections to my Catalogue of the extra-marine shells of the European faunal region).

By Dr. W. KOBELT.

(Jahrbucher der Deutsch. Mal. Gesellschaft, iv., pp. 14—45.)

Dr. Kobelt had published a first supplement to his Catalogue in 1873; he now prints another and more extended one.

The principal alterations are the following :—

A subdivision of the region is now admitted—the provinces being the Arctic, the Boreal, the Germanic, the Alpine, and the Mediterranean, the latter being divided into six circles, the Moorish, the South Italian, the Dalmatian, the Greek, the Asia Minor, and the Syro-levantine.

Many species are added, principally from the Balkan peninsula and the Caucasus, *Campylea*, *Buliminus*, *Pupa*, *Clausilia*, *Neritina* and *Unio* having received particularly numerous additions. On the other hand a considerable number of the species of the catalogue have been struck out, as being varieties or synonyms.

The subgenus *Leptaxis* is removed from the European Fauna, the species referred to being transferred to *Macularia*. *Helix sicana*, *platychela*, and *Nebrodensis* are transferred to *Iberus*, and *H. (I.) minoricensis* to *Macularia*.

A new subgenus, *Xeroleuca*, is proposed for *H. turcica*, etc. The toothless species of the subg. *Chondrula* are formed into a new subgenus, *Mastus*, Kob. The species of *Pupa* of subg. *Torquilla* from *Farinasi* to *Sardoa* now constitute the subg. *Modicella*, Adams. It is not pretended to give a final revision of the difficult genus *Clausilia*, but the following alterations are suggested: Subg. *Melora*

divided into four; *Medora* sensu stricto for the blue Dalmatian species, *Siciliaria* for the Sicilian, *Albinaria* for the white Greek shells, and *Cristataria* for the Syrian. Most of the Syrian species under *Idyla* should also be transferred to *Cristataria*. The species under *Marpessa* from *succineata* Zgl., to *capillacea* Rossm., form the subgenus *Dilatatoria* Vest, *elata*, *gulo*, *procera*, and *turgida* constitute the group *Uncinaria* Vest. The subgenus *Serrulina* Mousson, is admitted for certain Transcaucasian species—*serrulata* Mous., *Sieversi* Pfr., etc. Westerlund's list of the European species of *Planorbis* is given.

187 names are added to the list of synonyms, Bourguignat alone being accountable for 53 of these, next to him Benoît and Parreyss' names are the most frequent.

This supplement is indispensable to all engaged in the study of European shells, and is prepared with the care that always distinguishes Dr. Kobelt's publications. We would advise all readers of the "Quarterly Journal of Conchology" to purchase copies of the Catalogue and Supplement, and thereby hasten that very desirable event, the publication of a second edition of the Catalogue embodying all corrections and additions to date.

C. P. G.

DESCRIPTION OF A NEW SPECIES OF *CONUS*.

By EDGAR A. SMITH, F.Z.S.,
Zoological Department, British Museum.



Conus cuneiformis,

Testa turbinata, superne subacute angulata, solida, sordide albida, nitida, sub lente transversim minutissime striata, et sulcis dis-

tantibus validis (superne vix conspicuis, basin versus confertioribus) insculpta; spira leviter concava, apice acutiuscula et fuscescens; anfract. 9 planiusculi, paululum exerti, striis spiralibus 3-4 incrementique lineis ornati; apertura angusta, intus violacea; labrum intus margine albidum, superne vix incisum; columella basi subplicata.

Long. 25 mill. Diam. max. 14.

This species is of a turbate form, with a slightly concave and not very elevated spire; the angle of body whorl is rather acute and its sides almost rectilinear or slightly concave. It is of a whitish colour faintly tinted with purple, the spire particularly towards the apex is stained with pale brown and the interior of the aperture is light violet; the spire consists of nine very gradually increasing whorls which are a little exerted and sculptured with three or four fine spiral striæ which are crossed by very minute arcuate lines of growth; the last whorl also shows incremental striations and minute transverse ones and is sculptured with transverse sulcations which are rather remote and almost obsolete on the upper third of it, equally distant but strongly marked around its middle portion, and much closer together towards the base, on the oral side of which is a rather distinct columellar fold. The aperture is narrow, scarcely wider at the base than superiorly; the labrum whitish within on its margin which is not prominent in the middle but nearly straight and only faintly incised at its juncture with the whorl.

There are two specimens of this interesting species in the National Museum which form part of the magnificent Cumingian collection; unfortunately no locality is attached to them.

This species must not be confounded with *C. trochulus* of Reeve, its nearest relation. It is a little more elongate, narrower at the base, with straight or even concave and not convex outlines as in that species; the spire too is slightly concave, more pointed and brownish at the apex, and the transverse sulcations are well

developed on two-thirds of the body-whorl, which is more sharply angled, whereas in *C. trochulus*, there are only a few well-marked sulci at the base. The whorls of the spire of the present species are slopingly flattened and slightly elevated one above another and finely spirally striated, whereas in Reeve's species they are concave or furrowed in the middle, not exerted or only very slightly so and do not show any distinct spiral striation.

DESCRIPTIONS OF NEW SPECIES.

By F. P. MARRAT.

Nassa Smithii, n. s.

N. testa ovato-oblonga, subfusiformi, crassa, albida, fasciis tribus fuscis ornata; anfr. 8-9, convexis, apicalibus lævibus, costulis numerosis, subnodosis, in anfractu ultimo granulatis, ad suturas moniliformibus; labro extus valde incrassato, intus; lirato columella arcuata, polita, unimaculata, valde verrucosa, superne uniplicata.

Hab. ?

I name this shell after my conchological friend, Mr. Edgar A. Smith, Zoological Department, British Museum.

Natica caffra, n. s.

N. testa subobtecte umbilicata, oblique depressa, spira brevi; anfractibus rotundatis, juxta suturas impressis, undique dense striatis, albida, flammulis aurantio-fuscis subdistantibus longitudinaliter picta, anfractu ultimo in medio unifasciata.

Hab. Corisco Bay, West Africa.

Natica (Mamma) faba, n. s.

N. testa oblongo-ovata, solida, alba, epidermide tenui fulva induta, spira obtusa, anfractibus declivi convexis, obscure plicato-striatis; columella callositate solida columnari umbilicam intrante; apertura alba, lunari ovata; operculum corneum.

Hab. West coast of Africa.

Marginella (Glabella) Davisiana, n. s.

M. testa M. bellii Sow. simili sed multo minore, crassiore, angustiore et pallidior, lineis longitudinalibus distantibus; labro intus crenulato, extus valde incrassato, columella quadriplicata.

Hab. West Africa. Captain Davis. (Coll. Keen.)

Marginella (Gibberula) nana, n. s.

M. testa obtuse conica, flavescente alba, nitente, lineis rubris tribus cincta; spira parva; columella valde callosa, quinque vel sexplicata; labro incrassato, intus crenulato, superne et inferne unimaculato. 3 lines by 2.

Hab. ? (Coll. Higgins, Keen and Marrat.)

Marginella (Gibberula) lucida, n. s.

M. testa cylindraceo-oblonga, semipellucida, nitente, lutescente-alba obscure unifasciata, laevi, spira immersa, columella quadriplicata, labro flexuosa, tenui, incurva. 9 lines by 4.

Hab. ? (Coll. Keen.)

HABITAT AND HABITS OF *HELIX REVELATA*.

By RICHARD RIMMER.

In Guernsey the range of *Helix revelata* seems to be confined to the southern end of the island, where it occurs in considerable abundance, but a stranger ignorant of the precise nature of its favourite haunts would experience as I did, much difficulty in finding it. Armed though I was, with a chart supposed to indicate with accuracy the places of its abode, I searched in vain for many days and at last leaving in despair the spots which seemed most likely, I found it in quite a different locality.

On the crest of the grassy slopes which clothe with richest green the rugged cliffs down to their very edge, there runs along the southern end of the island a rude stone wall, and my experience with regard to *revelata* is that it is to be found at distances varying from five to fifty yards below this wall—most frequently, and certainly in greatest abundance among what might be termed mimic landslips of disintegrated rock. A small species of Sorrel, *Rumex acetosella* I think, grows among these loose stones, and a colony of *revelata* is pretty sure to be there also.

I particularly remarked the absence, as a rule, from among these colonies, of those commoner species such as *H. hispida*, *Z. alliarius*, &c. which are abundant all around: it may be that our little friend is pugnacious, and somewhat selfish.

I cannot help thinking that its favourite food consists of the eaves and roots of the species of sorrel above named, at all events I fed it for several days upon that plant, which it devoured with apparent relish.



REVIEW OF THE GENUS *TULOTOMA*, WITH
REMARKS ON THE GEOGRAPHICAL DISTRIBUTION
OF THE NORTH AMERICAN *VIVIPARIDÆ*.

By A. G. WETHERBY,

Assistant Professor of Natural History in The Cincinnati University.

In the old Lamarkian genus *Paludina*, several groups of freshwater mollusca were placed, which have since been separated. Although these groups agree in being ovo-viviparous, and have some anatomical characteristics in common, the separation of the shells included by Lamark under *Paludina*, into the genera *Vivipara*, *Melantho*, *Lioplax*, and *Tulotoma*, is now very generally recognized among American Naturalists, and has very greatly aided in the classification of the abundant representatives of the *Viviparidæ* to be found in the various parts of the United States.

The special object of the writer is, as briefly as possible, to review the genus *Tulotoma*, as hitherto understood, and to add some facts, recently established, to our knowledge of the shells. These facts rest upon a protracted study and comparison of many hundred specimens, from the largest adults to those just removed from the ovaries; and taken at different localities on the Coosa, and Alabama rivers, the localities being many miles apart, and in different geological formations. As the specimens were obtained by a collector, I have not had the very great advantage of studying the living animals in their native habitat; a pleasure that I hope the coming summer may afford. But I offer the following review, in the belief that it will be found in the main correct, and with the hope that others interested in these mollusks may perfect the work here begun.

The first species published, of the genus under consideration, was the *T. magnifica*, Conrad, or *T. bimonilifera*, Lea. Mr. Con-

rad's description was published in N. Fr. W. Shells, 1834, p. 48, Pl. viii, fig. 4. Mr. Lea's description was published in Trans. Am. Phil. Soc., Vol. 58, Pl. xix, fig. 71, *date of title*, 1837. Without entering into discussion of the matter here, it may suffice to say that Mr. W. G. Binney in his elaborate review of the *Viviparidæ*, in "Land and Fresh Water Shells of the U.S.," published by the Smithsonian Institution, gives the species to Mr Conrad, while Dr James Lewis, who is always very critically correct in such cases, gives the species to Mr. Lea. I have not had the evidence necessary to definitely settle the question of priority, which ought to be honestly put right.

By both writers the species in question was described as a *Paludina*; Mr. Conrad giving as habitat, "Alabama River at Claiborne," and Mr. Lea simply "Alabama River." It is proper to add that Mr. Conrad collected his own specimens, while Mr. Lea received his from Judge Tait. In Trans. Am. Phil. Socy., ix, 22, (1844), Mr. Lea described the *Paludina angulata*, from the "Alabama River (Judge Tait)." As his types of both species were from Judge Tait, it is to be inferred that the type of *P. angulata* was from a locality not remote from that which furnished the *P. bimoni-lifera*. In the same volume of the Transactions, ix, p. 23, (1844), he described the *P. Coosaensis*, from the "Coosa River, Alabama, Dr. Brumby." It will thus be seen that all the types were from different parts of the same stream; that all were described as *Paludina*, and that two of them were published in 1844.

Previous to the description of the last two species, in July, 1840, Prof. S. S. Haldeman commenced the publication of his "Monograph of the Fresh Water Univalve Mollusca of the United States," which, as Mr. Binney observes, "must always remain a standard work on the genera of which it treats." In a supplement to pt. I of this Monograph, October, 1840, Prof. Haldeman published five sub-genera of the *Paludinidæ*, as follows; *Paludina*, Lam.; *Lutella*,

Hald.; *Nematura*, Benson; *Amnicola*, Gould and Haldeman; and *Tulotoma*, Hald.; the latter being described as follows: "Soft parts of animal and lingual dentition unknown. Operculum with the nucleus simple. Shell thick, pointed conic, imperforate. Whorls flattened, nodulous, carinated, with a dark, olivaceous epidermis; peristome thin, continuous."

The generic description here given is somewhat faulty, as the term "pointed-conic" does not apply to the shells in question, all the species being obtusely-conic, even when the spire is most perfect. The epidermis, in all the species, ranges through all varieties of coloration, yellow, green, red and purple tints to black, and the shells are often beautifully banded. The shells of the *T. Coosaensis*, are not "imperforate," the peristome is not reflected as in the other species: nevertheless they are but slightly umbilicate. The shells of both *T. angulata* and *T. Coosaensis* may be described as *thin shells* with entire propriety: and the latter is very thin for a species of this family. The description of the operculum is altogether faulty, or rather wanting, and, in shells where that organ is so entirely different from that of associate genera of the same family, the difference is worthy of particular notice, especially since, in the species under consideration, it is precisely alike.

Mr. Binney, probably recognizing these facts, says, "Operculum horny, subtriangular, with a lateral nucleus and concentric striæ." This description would read more correctly if semicircular was substituted for "subtriangular", and the following added: Columellar margin straight, outwardly reflected, forming an elevated, marginal fold, along its whole extent. Nucleus central on the columellar margin. Operculum increasing by growth in semicircular layers, which overlap each other, so that the outer margin is much the thinnest part. Outer surface rough and scaly; inner bearing a lunatic cicatrix of attachment, and a narrow, polished line surrounding it.

By comparing the opercula of various *Viviparidæ* in my collection, I find that of *Tulotoma* to be most nearly allied to that of *Lioplax*, both in form and manner of growth. The reflected edge, however, is distinctive, as is the fact that the opercula are always bent, laterally, so that the extremities curve upward when the operculum rests upon the outer surface. This prominence has been given to the description of the operculum, because of its high office as a protective organ, and the fact that it is almost identical in the three species of *Tulotoma*.

It will be remembered that Prof. Haldeman's description of the genus begins with the words, "Soft parts of the animal and lingual dentition unknown." These were described by Mr. W. G. Binney in *Annals of the Lyceum of Natural History*, Vol. ix., February 1870, as follows. "Foot moderate; not produced beyond the snout. Color dark blue. Head and snout small. Right tentacle broad. Left cervical lappet small; right larger, trough-shaped. Branchial laminae numerous, long, narrow, crowded in a double row. Lingual membrane long, with the arrangement of teeth usual to the family. Teeth 3 . 1 . 3. The centrals are subcircular, with a truncated, irregularly horizontal base; the apex recurved, channeled and obtusely knobbed or denticulated. The first lateral is about as wide as the central, oblong, bulging at the sides, truncated and horizontal at the base, its apex deeply digitated or fringed, some of the denticles being recurved at their apices. The second lateral is laminar, narrowing slightly towards the truncated base, curving outward from the central tooth, its apex with long fringe-like denticles, some of which are recurved, others obtusely knobby. The third lateral resembles in shape and size the second, but is somewhat less curved, and has shorter, less delicate denticles. There is considerable variation in the number, length, delicacy and arrangement of the denticles on the different teeth. In some cases they are very broad, with simple, recurved edges. In others they are long, narrow and bifurcate. Again on many teeth the denticles

are not absolutely separated, one from the other, but the end of the tooth is rather deeply channeled. The variations occur in the laterals, the centrals being more uniform. The side edge of the laterals is sometimes recurved for a considerable length."

From this description of the animal, we can readily perceive its analogies with other genera of this family, and I may add, that I have taken as many as seven or eight young shells, with from rather less than one whorl to more than two, from the ovaries of a single individual.

The history of the descriptions being given, and the generic alliances proven, it remains to consider the validity of the three species written. Prof. Haldeman united all three species under *T. magnifica*, Conrad. In his review of this genus, published in the Smithsonian work to which allusion has already been made Mr. Binney agrees with Prof. Haldeman in uniting *T. magnifica* and *T. angulata*, but says with reference to *T. Coosaensis*, "Mr. Lea's type of this species bears but little resemblance to *V. magnifica*, yet Prof. Haldeman unites the two. I myself have seen no connecting links between them, though I have examined numerous young individuals of *V. magnifica*." In this latter decision Mr. Binney was entirely correct, and the only wonder is how any person, having seen the shells, could have decided otherwise. But in reference to uniting the *T. magnifica* and the *T. angulata*, there is by no means an equal degree of certainty. It must be borne in mind, that the geographical distribution of shells is an important factor in determining their specific relations; and in no case is this fact more fully demonstrated, than in the study of the fresh-water operculates of North America. The *Tulotoma angulata* has not been found in that part of the Alabama river which furnishes the typical specimens of *T. magnifica*; at least such has been the result of all my endeavours, and collections containing many hundreds of specimens, of all ages and sizes, have reached me from all parts

of the river between Wetumpka and above that place to Claiborne, the locality of Mr. Conrad's types. Whether this indicates that the *T. angulata* varies in its down-stream distribution, until it reaches the enormous development of the typical *T. magnifica* is a problem that I have not the proper means of determining, but while there are intermediate forms, *they are in no case adult*, so far as my observation extends, and as the shells are separated by better and more constant characters than are often regarded as being of specific value, I have deemed it proper for the present, to treat them as different species.

They are separated by the following remarkably distinct and constant characters: *T. magnifica* is a very massive and heavy shell, attaining dimensions of 50 millimetres. *T. angulata* is comparatively light and thin, and seldom exceeds 30 mill. The whorls of *T. magnifica* are heavily waved, and ornamented with double rows of tubercles, while the sutural angle is abrupt, leaving the top of the whorls squarely shouldered. Those of *T. angulata* are smooth, or very slightly nodulous, with a long, sloping angle to the suture, about which there is a very small shoulder. The aperture of *T. magnifica* is proportionally much smaller than that of *T. angulata*, and the row of tubercles produces abrupt, angular indentations of the lip; while that of *T. angulata* is more regularly curved. These differences are apparent at the slightest glance, and do not seem to be the result of differences of habitat, as the transitional forms do not occur between the localities furnishing the typical specimens of the species: at least they do not occur *as adult*.

The *T. Coosaensis* is so very distinct from the other forms, as to almost warrant its generic separation. The aperture is nearly circular, like that of *Vivipara*: the shell small, perforate, and comparatively thin: the sutures are deeper: the whorls convex at base and sides, but distinctly and widely planiform above. Yet the

most remarkable feature of this species, is its coating of long spines or hairs, arranged in spiral rows around the whorls, forming the most anomalous and interesting species in the whole range of our freshwater mollusca. That Mr. Lea's type specimen was an old shell, without an operculum, and from which the spines were eroded, is probably true, as, having already published two species, he would have noticed the very distinct opercle, and the hairy spines of the epidermis form a feature, that no naturalist of Mr. Lea's unusual acuteness, would have passed without observation; yet we find no mention made of the very remarkable operculum in any of the species, nor of the hirsute epidermis of *T. Coosaensis*. To obtain fine specimens of the latter species, has been very difficult, as the older adults seem to lose the spines by erosion; though if taken in the early autumn, the summer's growth of shell is generally clothed with its proper appendage. All the genus inhabit the Coosa, the *T. angulata* and *T. Coosaensis* being confined, so far as I have been able to discover, to the upper and more rapid parts of the stream; while the *T. magnifica* occurs in the lower parts of the Coosa and in the Alabama proper. I do not deem it by any means improbable that this anomalous system of drainage, containing two genera of operculates not found elsewhere in the world, may yet furnish extraordinary riches of knowledge bearing upon the great problem of Geographical Distribution; a problem which I firmly believe will reduce twenty-five per cent of all known species to synonyms. While separating the *T. angulata* for the present, from the *T. magnifica*, the very fact of their residing in parts of the stream so different, may offer suggestions as to their identity: and the question is not so much whether the same species can exist under such varying conditions, as whether the varying conditions do not produce varieties that have been called species. The shells live on the under side of loosely lying rocks and large stones, to which they cling with much tenacity. They are very abundant,

and all the varieties of coloration are well represented by specimens. To these remarks it should be added that *T. Coosaensis* has so far proven much more difficult to obtain than the other species. Along with them are found the species of *Schizostoma*, and those varying forms of *Goniobasis*, *Anculosa* and *Lithasia* which have given rise to a multitude of doubtful species.

A few words in regard to the Geographical distribution of the North American *Viviparidæ* seems to be in place here, in contrast to the extremely limited range of the species in question. The genus *Melantho* is found from Canada to the lower part of the Gulf drainage, having its most ponderous forms and greatest diversity in the central district of this range. The genus *Lioplax* extends from New Jersey and Pennsylvania southward to the Gulf drainage, having its most abnormal species in the Coosa river, associated with *Tulotma* and *Melantho*. *Vivipara* extends from Minnesota to Mexico, and has its most highly developed forms in the same region as *Melantho*, or, perhaps, more properly in its western half. These shells are widely varied in different habitats, as to their size and weight, but they never seem to lose their distinctive characters, with the single exception of *Melantho*; and greater interest is added to this fact, as we find specimens, identical in every respect, inhabiting the extreme limits of distribution. I have recently obtained *V. intertexta* from Lakes in Minnesota, identical with specimen received from Louisiana at the same time. Likewise, the northern specimens of *Vivipara contectoides* are identical, in every particular, with those from Florida.

In this same range the variation of the *Strepomatidæ* is so great that there are no common species; the few northern forms of this family entirely disappearing within the limits embraced by the Ohio system of drainage. Though *Limnæa* and *Physa* are sub-boreal genera, a few obscure species have a range far to the south, being found in Texas and the other gulf states. But whether they are

varieties of northern forms is yet an open question. Very few, if any, of the *Naiïdes* have an equal distribution; and the same is true of our Land Shells. In these facts are the data for much profitable study, earnest field work and anatomical examination. And when we find a stream, from whose pregnant waters one hundred and eighty-two described species have been taken, and when we reflect that two genera of these shells are confined to its limits, the problem assumes proportions of interest not excelled by that of any other stream in the world. Besides, its rocky banks, of Tertiary and Cretaceous sands and clays, crowded from base to summit with remains of ancient life, render this region classic ground to the student of Palæontology; and if the facts and suggestions contained in this article, tend in any way to the fuller understanding of the anomalous fauna of this region, the object of the writer will have been fully attained.

Zonites glaber, (STUDER), near Leeds.—While collecting shells on the 24th of September, 1876, in company with my friend Nelson, at the village of Shadwell, I took a specimen of this species, this brings its occurrence nearer Leeds than hitherto recorded.—
H. CROWTHER.

Ancylus fluviatilis var. **gibbosa**, (BOURGUIGNAT).—I have to record two new Yorkshire localities for this variety, one is a small stream that runs into Lake Semmerwater in Raydale; the other a small mountain stream near Gunnerside, in Swaledale. In both the above places, I took it about two years ago.—
H. CROWTHER.

NOTE ON *LIMNÆA STAGNALIS*.

By WILLIAM NELSON.

This species has the power (occasionally at any rate), when irritated, of discharging a pale violet coloured liquid. Having observed many times, that in scalding the animal of this species, previous to cleaning out the shells, that the water was tinged with violet, I was led to pay particular attention to them in the living state; and found that they discharged this coloured liquid sometimes at once upon being lifted out of the pond, but more often if irritated.

Helix hispida var. albida.—This variety has occurred somewhat commonly during the present spring, several specimens having been reported from Wakefield, Sandal, Seacroft, Roundhay, Whinmoor and other places.—JNO. W. TAYLOR.

Clausilia biplicata var. Nelsoni.—In March, 1866, while collecting this species on the bank of the Thames, at Hammersmith, from the trunks of the willow trees, near its margin, I found a variety, which on being submitted to Dr. Jeffreys some time afterwards he named as above at my request, after my colleague Mr. Wm. Nelson.

It is rather more slender than the usual form, almost totally devoid of striation, and translucent, the axis being visible through the shell; the last whorls are tinged with a very pale reddish brown, passing into whitish on the upper whorls.—JNO. W. TAYLOR.

Clausilia biplicata var. albida.—I may record here that in September, 1876, while at Heidelberg in Germany, I found a beautifully pure white and fine specimen among the herbage in the vicinity of the castle.—JNO. W. TAYLOR.

Helix Dehnei, *Rossm.*—I have recently found specimens of this species in my collection of *Helicidae*, where the specimens were unidentified until recently. I received them a few years ago with some other interesting species, procured from gum imported from N. Africa.

Until recently, only one specimen was known of this species, which was obtained by the same means as the specimens in my possession.

It is allied to *Helix subdentata*, Fér.; and also to *Helix pisana* approaching most nearly to the African form of that species.—Jno. W. Taylor.

Argiope cistellula at Weymouth.—I have lately found on this coast, specimens of the above species, thus confirming its southern range.—R. DAMON.

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Catalogue of the Genus *Pleurotoma*. By H. C. Weinkauff,
pp. 1—10.

Catalogue of the Genus *Clavatula*, Gray. By H. C. Weinkauff,
11—13.

Critical review of the Genus *Doridæ*. By Dr. R. Bergh, 45—47.

Remarks on some Transcaucasian species of Pupa. By Dr. O. Reinhardt, pp. 76—86.

Three new species are described *P. interrupta* (Pl. iii, fig. 4); *P. clavella* (Pl. iii, fig. 6); and *P. (Isthmia) Salurnensis* (Pl. iii, fig. 7).

ON THE VITALITY OF CERTAIN LAND MOLLUSKS.

By ROBT. E. C. STEARNS.

From the Proceedings of the California Academy of Sciences, Oct. 18th, 1875.

I submit for the inspection of the Academy a living specimen of *Bulimus pallidior*, Sby., one of nine given to me by Prof Geo. Davidson, who collected them at San José del Cabo, Lower California, in March, 1873.

These snails were kept in a box undisturbed until June 23, 1875, when I took them out, and, after examination, placed them in a glass jar with some chick-weed and other tender vegetable food, and a small quantity of tepid water, so as to make a warm humid atmosphere. This hospitable treatment induced them to wake up and move about after their long fast and sleep of *two years, two months and sixteen days*. Subsequently all died but this, which seems to be in pretty good health, but not very active.

It may be remembered that I mentioned before the Academy at a meeting in March, 1867, an instance of vitality in a snail (*Helix Veatchii*), from Cerros Island, even more remarkable, the latter having lived from 1859, the year it was collected, to March, 1865, a period of *six years*.

The famous specimen in the British Museum which is cited in the books, *Helix desertorum*, had lived within a few days of four years, fastened to a tablet in one of the cases, when discovered to be alive.

Helix desertorum, as the specific name implies, is found in arid and sterile areas, in the continents of Africa and Asia, and has, as will be perceived, a wide distribution. From the former continent, I have specimens from Egypt, and it also ranges through Arabia in the latter.

The *Bulimus* from the mainland of the peninsula of Lower California, and *Helix Veatchii* from Cerros or Cedros Island, off

the coast on the ocean side of the same, come from within the same physical environment, being comparatively a limited distance apart.

The *Helix* belongs to an interesting and peculiar group, probably varieties of one species, which includes, at present, the following names: *Helix areolata*, Sby., *H. Veitchii*, Newc., *H. pandoræ*, Fbs., and *H. levis*, Pfr. Other forms geographically approximate may hereafter, on further investigation, be referred to the same lineage.

Of the above, *H. areolata* was the first described, or I should say that this appears by the date to be the first name bestowed upon any member of the group. This species has been quoted from Oregon, and *H. levis*, from the Columbia River, in both cases erroneously. The figures in "Land and Freshwater Shells of North America," p. 177, are too elevated and globose for the typical *areolata*, but the larger figures faithfully represent *H. Veitchii*. Elevation and rotundity are insular characteristics in this group, and *areolata* is comparatively depressed. It is found in considerable numbers on the uplands around Magdalena Bay, which is on the outer or ocean shore of the peninsula, in latitude about $24^{\circ} 40' N$.

Bulimus pallidior, which is pretty generally distributed through Lower California, from Cape St. Lucas northerly, has also erroneously been credited to San Diego in California proper. It is arboreal in its habits, at least during the winter season, and frequents the Copaiva trees. It has been said to inhabit South America, which is probably incorrect, and the locality "San Juan," mentioned in "L. and F. W. Shells," on p. 195, where a good figure of this species may be seen, should be *San Juanico*, which is on the east side of the peninsula, in latitude about $27^{\circ} N$.

The great importance of particularity in habitat will be at once perceived, when I state, that there are no less than *three* other localities on the west coast of America, *north* of the place cited, all of which are referred to in various scientific works, which have

come under my observation, as "San Juan," and there are perhaps as many more "San Juan's" south of that specially quoted herein on the westerly coast of America, in the Central and South American States.

Attention is directed to the fact that the three species herein mentioned as exhibiting extraordinary vitality, belong to geographical areas, which receive only minimum rainfall, or which are, in simple language, nearly rainless regions.

Within such areas, vegetation is extremely limited even in favourable seasons, and the presence and growth of the annual plants is, of course, dependent on the rainfall; this last occurring infrequently makes the food supply of land mollusks and other phytophagous or vegetable-eating animals exceedingly precarious.

It is highly probable that a careful investigation in this direction will lead us to the conclusion, that the land mollusks which inhabit arid areas have, through selection, adaptation and evolution, become especially fitted for the contingencies of their habitat, and possess a greater degree of vitality or ability to live without food than related forms in what may be considered more favorable regions, and through and by reason of their long sleep or hibernation, *more properly estivation*, with its inactivity and consequent immunity from any waste or exhaustion of vital strength, are enabled to maintain their hold upon life when animals more highly organised would inevitably perish; and we are furnished with an illustration, in the instances cited, how nature works compensatively, when we institute a comparison with the opposite condition of activity, and the food required to sustain it.

American Naturalist, Jany., 1877.

YATES, LORENZO G.—Notes on the aboriginal money of California.—pp. 30—32.

The *Dentalium* is used by the Indians of the North. Large quantities of which have been imported from Europe for trade with the Indians.

The shell of *Saxidomus aratus* is broken and fashioned into circular disks of suitable size, a hole drilled through the centre, and then strung on strings. Eighty of these disks are valued at one Dollar by the Indians of Lake County.

The shell of "Abelone" (*Haliotis*) is formed into a somewhat pentagonal form, and also into circular disks, plain or ornamented, these appear to be also used for personal adornment, &c.

Olivella biplicata, Sowby., is also (or was) used for money, the top of the spire being rubbed off to allow of a string being passed through, or sometimes pieces of the larger whorls were broken off, and perforated for the passage of string.

February, 1877.

STEARNS, ROBT. E. C.—On the vitality of certain Land Mollusks.—pp. 100—102.

March, 1877.

POURTALES, L. F.—Hints on the origin of the Flora and Fauna of the Florida Keys.—pp. 137—144.

These islets have received their flora chiefly from the West Indies, and the fauna mainly from the North American Continent

The Land Shells, according to Mr. Binney, are quite the same as South Florida, and seem to be about equally derived from the great "Southern Province" of the Eastern region of North America and from the West Indies.

The species derived from the West Indies are

<i>Zonites Gundlachi</i> ,	<i>Strophia incana</i> ,
<i>Patula vortex</i> ,	<i>Stenogyra gracillima</i> ,
<i>Helix varians</i> ,	<i>Liguus fasciatus</i> ,
<i>Cylindrella Poeyana</i> ,	<i>Orthalicus undatus</i> ,
„ <i>jejuna</i> ,	<i>Chondropoma dentatum</i> .
<i>Macroceramus pontificus</i> ,	

Species derived from the "Southern region" of North America:

<i>Glandina truncata</i> ,	<i>Pupa variolosa</i> ,
<i>Succinea campestris</i> ,	„ <i>modica</i> .
<i>Polygyra Carpenteriana</i> ,	„ <i>rupicola</i> ,
„ <i>semptemvolv</i> ,	<i>Helix pulchella</i> ,
„ <i>cereolus</i> ,	<i>Zonites minusculus</i> ,
„ <i>uvulifera</i> ,	<i>Helicina orbiculata</i> .

Descriptions of Six New Species of Shells from the collections of the Marchioness Paulucci and Dr. Prevost.—By G. B. Sowerby, Junr., F.L.S.

(From P.Z.S., November, 1876, pp. 752—755).

Conus Pauluccia, (fig. 3), Mauritius. An addition to the subgenus *Cylinder*, resembling in form *C. gloria-maris*; and in color and markings *C. aureus*.

Conus superscriptus, (fig. 4), Madagascar. Quite a distinct species, and remarkable for its bluish tinge of color and delicate letter-like markings.

Conus baccatus, (fig. 5). This species is of a somewhat stunted form, and is furnished with a double angle at the top of the body-whorls, the markings are very delicate, and there are rows of gem-like granules round the whorls.

Conus reflectus, (fig. 6). A pyriform species of a whitish color, with two broad rose-colored bands, clouded with brown.

Lima Zealandica, (fig. 1a, 1b), New Zealand. Distinguished by a broad concave lunule, forming a straight outline to one side of the shell, terminating in an abrupt angle.

Its nearest allies are *L. paucicostata*, Sow. from the Red Sea and *L. multcostata*, Sow., from Australia. A New Zealand pliocene fossil comes still nearer. All hitherto known species (except *L. fasciata*) are entirely white; a variety of this species has the ribs of a reddish brown.

Cardium ornatum, (fig. 2), Hong Kong. A small species with conspicuously noded ribs, and ornamented with distant red spots.

THE 'VALOROUS' EXPEDITION.

Reports by

DR. GWYN JEFFREYS, F.R.S., AND DR. CARPENTER, C.B., F.R.S.

[From the Proceedings of the Royal Society, vol xxv, No. 173.]

This report is marked with the usual care and labour, which the learned author, invariably bestows upon his work.

The part taken up with the Mollusca fills 25 pages, and is divided into a narrative and tabular account of the results; the former of which contains a history of the Scientific exploration of the deep sea in the North Atlantic and Arctic Seas.

There is an interesting account of the synonymy of *Littorina rudis*. The only land shell obtained at Godhavn was *Vitrina pellucida* from among moss, at the sides of small streams formed by the melting ice.

In paragraph 10, is the only allusion that is made; and that, in the most brief manner possible, to the imminent peril in which not only the scientific results of the expedition was placed, but also the lives of the explorers, when the ship stranded on a sunken reef of rocks, about ten miles from Holsteinberg, which had not been laid down on the chart. Whilst the ship was undergoing repairs,

they had some boat dredging in shallow water, where among other Mollusca was a living specimen of a new species of *Pleurotoma*, unlike any European or North American species; which is described as *P. rubescens*, Jeff.

The number of marine species procured during the expedition was 181; viz: 122 in Davis Strait, and 59 in the North Atlantic, besides fragments of several undescribed species. Altogether there are no fewer than 57 new species: (*Brachiopoda* 2, *Conchifera* 16, *Solenocochnia* 7, *Gastropoda* 11, *Pteropoda* 1, *Cephalopoda* 0), all except the *Pleurotoma* from great depths.

The author discusses the question of the mollusca of Davis Strait being American or European, and gives his reasons for inclining to the latter opinion.

Twelve new species are enumerated:—*Atretia gnomon*, *Pecten fragilis*, *Lima gibba*, *Nucula reticulata*, *N. expansa*, *Glomus nitens*, *Malletia cuneata*, *Kellia symmetros*, *Axinus incrassatus*, *Dentalium candidum*, *Pleurotoma rubescens*, *Utriculus substriatus*.

Three new genera are characterized, viz.—

Atretia, Jeffreys.

A remarkable brachiopod. 'Its nearest ally is *Rhynconella* from which it appears to differ only by a straight instead of an incurved beak.'

Glomus, Jeffreys.

'Has the aspect of *Pectunculus* and the hinge of *Leda*; but the teeth are not arranged as in either of those genera.'

Seguenzia, Jeffreys.

'This genus evidently belongs to the *Solarium* family, but is distinguished by having a broad and deep open furrow (rather than a cleft) in the upper part of the last whorl.'

The Report should be in the hands of all who are interested in marine invertebrata, as it is full of invaluable and deeply interesting matter.

Since the publication of the Report, the whole of the new species have been described, and will be noticed in our next issue.

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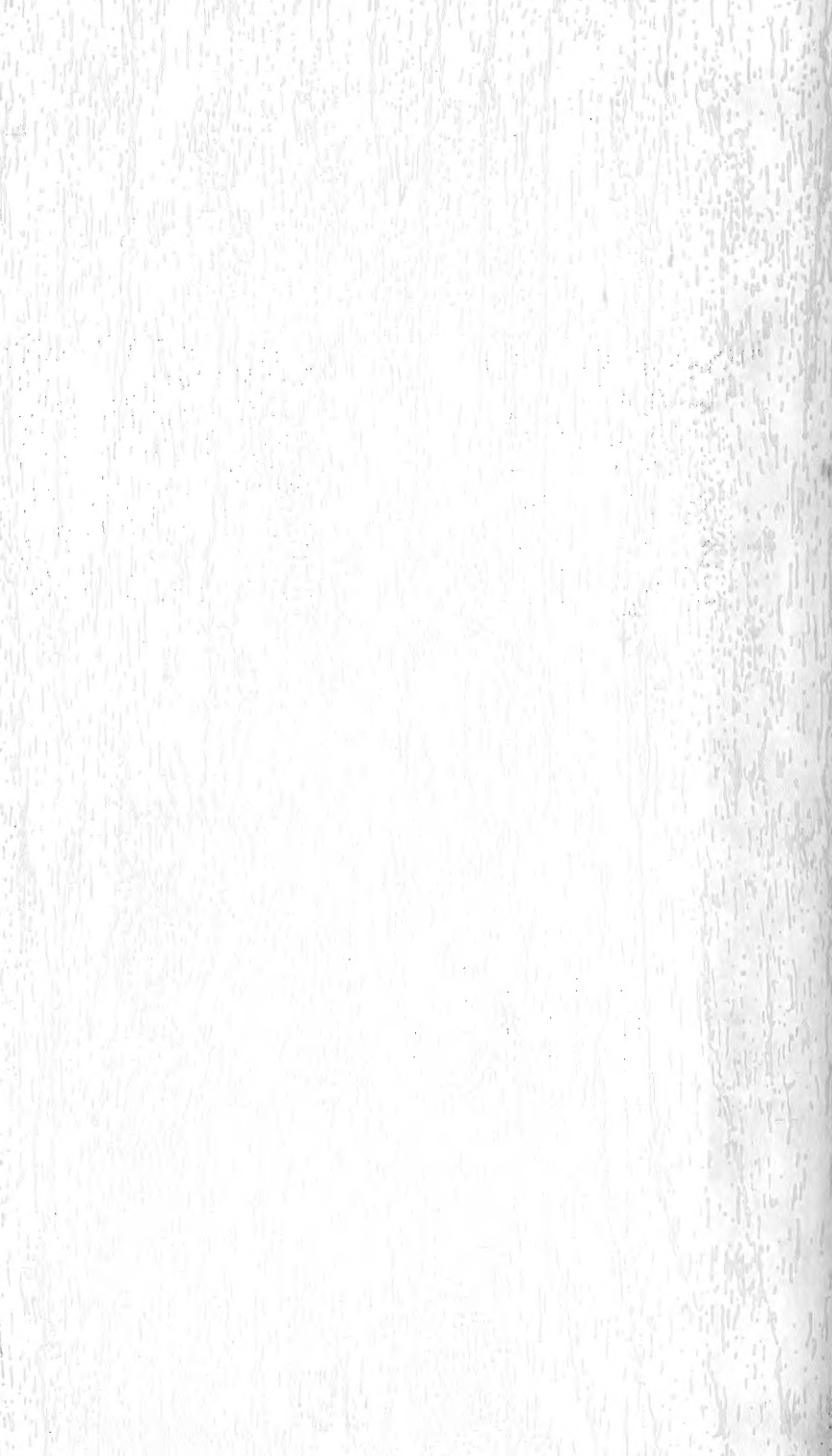
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